

CASE STUDY



Birchfield

Ideally situated in Hereford's green landscapes, the three-bed Birchfield cottage is nestled amongst tranquil walking and canoeing spots yet remains within easy reach of Hereford's centre. The custom-designed timber-frame home spans across a plot of 160m², offering an open-plan living space that is perfect for family and social gatherings.

Frame Technologies designed and manufactured Birchfield's high-quality timber frame using a breathable closed panel timber system to deliver sustainability benefits and enhanced performance. The system improves thermal bridging and minimises air leakage, ideal for this modern, energy-efficient home. Our fabric first approach enabled us to create a thermally efficient building envelope without relying on expensive energy-saving bolt-ons.



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THE CHALLENGE

As a firefighter, the self-builder was restricted location-wise by her local fire station's call-out areas. Not wanting to sacrifice her dream home plans, she collated design ideas and drew up a budget plan so that she could self-build the home she had always wanted despite geographical limitations.

Once planning permission had been secured, the self-builder contracted Frame Technologies on the basis of our prompt responses, high level of expertise and quick turnaround guarantee. Frame Technologies erected the panels and floor structure within 48 hours and the rest of the timber frame within seven days.

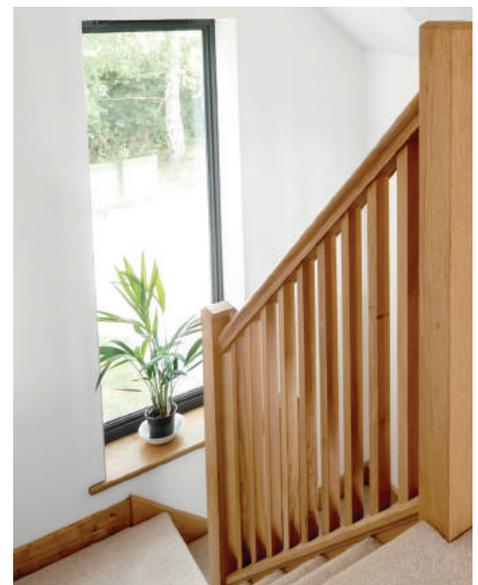
MEETING THE BRIEF

Frame Technologies overcame structural challenges to ensure that the self-builder's design was made possible, integrating an overhanging roof to form a porch area and huge bi-folding doors to create a spacious feel in the main living space. On top of this, the large-scale patio doors required a steel wind frame to accommodate the sizable span of the opening, which Frame Technologies erected along with the timber frame.

Frame Technologies manufactured metal web floors for the self-build to meet the brief's requirements for a cost-effective, durable home solution. The metal web floors strengthen the lightweight timber frame, enabling the timber to act in place of steel or concrete while reaping thermal, acoustic and sustainability benefits. The precision-engineered metal web joists were cost-effective and quick to install, allowing unequalled design freedom when it came to selecting floor applications.

OFFSITE MANUFACTURED TIMBER FRAME

Our client had previously invested in a Frame Technologies timber structure and decided that a pre-manufactured solution was perfect for her new self-build home. Much of Frame Technologies' business is generated by recommendation and repeat business. The timber frame solution encompassed the full supply and erection of the engineered timber frame and roof system, using a breathable closed panel solution to improve thermal bridging and minimise air leakage. The precision-engineered timber structure with engineered truss rafter roof was 30% quicker to construct using offsite techniques than traditionally constructed homes of the same dimensions.



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ACHIEVING THE OPTIMUM PERFORMANCE

Frame Technologies employed our TechVantage™ E system, a 140mm panel containing rigid polyurethane insulation to achieve a U-value of 0.19. The system was erected as a fully insulated panel with PIR insulation comprising an external 9mm OSB, foil breather paper and brickwork, combined with an internal polythene vapour barrier, service battens and 15mm plasterboard.

The timber technology offers highly effective thermal benefits, reducing lifelong heating bills. Frame Technologies paired over height panels with top chord supported metal web joists to improve the thermal performance through the floor and minimise the thermal bridge. The top-chord support also reduces shrinkage, which can be seen using the traditional ring beam detail.

POSITIVE OUTCOMES

'Frame Technologies were one of the first companies we approached for the timber frame and their prompt response, quick turnaround time and helpful staff made the decision to work with them very easy. Days before the timber frame was due to arrive onsite, we hit a glitch and had to postpone the build for two months! Fortunately, Frame Technologies understood the delay and put our frame on standby with no hassle at all. To live in a house designed and built by Frame Technologies, enjoying the rewards of the hard graft and hard decision-making, is THE dream.'



"Frame Technologies has been the first timber frame specialist contractor to be independently audited for the Structural Timber Association's Membership and Quality Standards Scheme – STA Assure. We are delighted to achieve Gold Status."

Frame Technologies Ltd
Broadaxe Lane
PRESTEIGNE
Powys
LD8 2LA

T 01544 267124

E enquiries@frametechnologies.co.uk